

S Weigand, John P
639.9 Coordination
F2cpea project, annual
1993 progress report

COORDINATION PROJECT
ANNUAL PROGRESS REPORT

STATE: MONTANA

Project: W-100-R-6 Title: Statewide Wildlife Program

Subproject: 1 Title: Survey and Inventory

Study: CO-2 Title: Coordination

Job No. 2 Title: Programmatic Environmental
Impact Statement

Period Covered: July 1, 1992 - June 30, 1993

Prepared by: John P. Weigand
Gary L. Dusek
Scott McCollough

Approved by: Donald A. Childress

Date: July 31, 1993

STATE DOCUMENTS COLLECTION

JAN 15 1994

MONTANA STATE LIBRARY
1515 E. 6th AVE.
HELENA, MONTANA 59620

PLEASE RETURN

Since this is a Progress Report only, results presented herein are not necessarily final and may be subject to change. For this reason, the information contained in this report may not be published or used for other purposes without permission of the Director.

OCT 12 1994

Aug. 9 '95

MONTANA STATE LIBRARY

S 638.9 F2cpea 1993 c.1 Waigand
Coordination project, annual progress re



3 0864 00087186 2

**COORDINATION PROJECT
ANNUAL PROGRESS REPORT**

STATE: MONTANA

Project:	W-100-R-6	Title:	Statewide Wildlife Program
Subproject:	1	Title:	Survey and Inventory
Study:	CO-2	Title:	Coordination
Job No.	2	Title:	Programmatic Environmental Impact Statement

Period Covered: July 1, 1992 - June 30, 1993

Prepared by: John P. Weigand
Gary L. Dusek
Scott McCollough

Approved by: Donald A. Childress

Date: July 31, 1993

Since this is a Progress Report only, results presented herein are not necessarily final and may be subject to change. For this reason, the information contained in this report may not be published or used for other purposes without permission of the Director.



TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION	1
OBJECTIVES	1
APPROACH AND METHODS	1
The Process	1
Steering Committee	2
Public Scoping	2
Proposed Action and Alternatives	2
Draft PEIS Outline	2
Information Needs	2
Commission Policies and Other Actions	2
Subprograms	3
Socio-Cultural and Economic Values Associated With Wildlife	4
EIS Exchange Project	5
RESULTS AND DISCUSSION	5
The Process	5
Steering Committee	5
Public Scoping	6
Proposed Action and Alternatives	13
Draft PEIS Outline	20
Information Needs	20
Commission Policies and Other Actions	20
Subprograms	25
Wildlife Species Descriptions	25
Socio-Cultural and Economic Values Associated With Wildlife	25
EIS Exchange Project	28
RECOMMENDATIONS	28
LITERATURE CITED	29
APPENDICES	
A: List of Meetings and Presentations by the PEIS	
Technical Committee, FY 1993	31
B: Initial Draft PEIS Outline	34
C: Wildlife Species Section Outline	44



INTRODUCTION

The Montana Department of Fish, Wildlife and Parks' (FWP) wildlife management program has not been subjected to extensive environmental review. Given the additional legislative mandates to manage most nongame and threatened and endangered wildlife species, plus expanded responsibilities for acquiring and managing wildlife habitats, a decision was made to prepare a programmatic review of the entire program rather than develop individual processes for each of its various aspects. The first five phases of this review were described in last year's report. This report records further activities in Phase 5 and presents recommendations for implementing the final five phases.

The reader is advised that this report present development of an untested approach to preparing a programmatic environmental impact statement (PEIS) for a statewide wildlife management program. Because it reflects a new approach, its organization and contents are subject to continual evaluation. The final process may change substantially from that described herein.

OBJECTIVES¹

The objectives of the Wildlife Management Programmatic Environmental Statement (PEIS) are to:

1. provide Montanans with another opportunity to participate in determining the direction of the wildlife management program
2. develop consensus on long-term goals and objectives for this program
3. identify any obstacles that prevent the FWP from achieving this public mandated program, and
4. establish an umbrella document that provides background information for addressing future management issues and applications for federal aid.

APPROACH AND METHODS

The Process

This process intends to assure that the FWP's wildlife management program complies with the MEPA. The process encompasses several phases, some of which have been retitled from last year's report:

¹ Objectives from FY93 Work Plan.

Phase	I:	Planning
Phase	II:	Organizational
Phase	III:	Informational (Internal)
Phase	IV:	Administrative & Informational (External)
Phase	V:	Research & Development
Phase	VI:	Editing
Phase	VII:	Develop/Examine Alternatives & Options
Phase	VIII:	Final Organization For Draft PEIS
Phase	IX:	Public Review and Comment on Draft PEIS
Phase	X:	Develop, Approval and Distribution of Final PEIS

Steering Committee

Functions of this committee, established in August 1991, are to: initiate and periodically review direction of the PEIS, identify priorities, assist in developing the Proposed Action and alternatives, develop temporary subcommittees to evaluate special issues, review annual budgets, evaluate a projected calendar of activities, and serve as members of selection committees for the two new Technical Committee employees.

Public Scoping

Issues and concerns expressed during internal and external scoping sessions during the report period were evaluated for relevance to the DRAFT PEIS and sorted by subprogram or other pertinent category. Criteria were developed and documented for evaluating those expressions. Written comments were similarly screened.

Proposed Action and Alternatives

A preliminary draft of a Proposed Action (PA) was developed by the Technical Committee from the issues and concerns raised at scoping sessions and then reviewed by the Steering Committee, and Wildlife Division administrative and field managerial staffs. Alternatives to the PA was developed and reviewed by these same groups.

Draft PEIS Outline

A preliminary outline was prepared and reviewed by the Steering Committee. Details will be updated as the process continues through the next report period.

Information Needs

Commission Policies and Other Actions

In addition to state and federal legislation, policies developed by the department and approved by the Montana Fish and Game Commission (FGC), and other actions

taken by the FGC also form the legal base from which the FWP operates. Therefore, all pertinent actions by the FGC were perused, and those having significant bearing on wildlife program direction were annotated.

Minutes from Montana Fish and Game Commission meetings, 1935-1992, were examined for wildlife-related comments and actions. Each of these meetings, whether in physical presence or via telephone conference calls, reflect public concerns. The purpose of this exercise is:

1. to familiarize the Technical Committee with subjects addressed and kinds of actions taken
2. to strengthen the description of the evaluation of the affected or existing environment in which the wildlife program operates
3. to overview development of the current wildlife management philosophy, and
4. to identify which wildlife management procedures have been deleted (and why they were deleted) in order to decide whether they might be applicable or should continue to be avoided in the future.

In this compilation, all actions on annual harvest regulations should be excluded except where they represented major policy changes (e.g., first declared archery hunting season) or adoption of certain regulations as policies.

Subprograms

Habitat. This subprogram focuses on the Wildlife Division's philosophy about habitat and FWP's mandates and approaches to enhancing habitat for wildlife.

Management. The main elements of management are: access, introductions and reintroductions, the harvest season setting process, game ranching and farming, preserves and refuges, wildlife damage management (shared with law enforcement), and supplemental feeding and descriptions (biology, ecology, management) of individual or groups of species.

Research. This subprogram describes the functions, products, methods, and techniques of research.

Law enforcement. This subprogram lists the ministerial actions that are exempt from MEPA review, examines re-prioritization of those actions with respect to an ecological system approach, and proposes future environmental law functions and involvement.

Conservation education. This subprogram will examine additional emphasis in both adult and youth projects needed to educate the public in ecosystem management.

Socio-cultural and Economic Values Associated with Wildlife

These values, related either directly to wildlife or to recreational activities, were identified. They will explore the diverse and changing values of the Indians, the early settlers, traditional recreationists, and emerging passive consumptive or nonconsumptive values. Costs and consequences associated with the various values will also be examined, including the sources and levels of department funding.

Socio-cultural values associated with wildlife by both FWP personnel and the public have been previously determined. Further investigation of those values was documented via a series of five to eight public Focus groups across the state in 1993. The purpose of these groups is to gather information on how constituency groups viewed wildlife recreational opportunities in Montana and FWP management of those opportunities. Anticipated numbers of participants per group is 15-20 with a diversity of users desired. Participation was determined as follows:

1. purchase a random list of persons in Montana telephone directories
2. via telephone, ask each potential participant a series of questions:
 - a. "In what ways do you personally get involved with fish and wildlife and/or fish and wildlife habitat, or are affected by fish and wildlife management and/or fish and wildlife habitat management, whether at work or play?"
 - b. "Which one of these is most important to you?"
 - c. "Please name all the associations and organizations whether national, regional or local that you are involved with that concern outdoor recreation pursuits, environmental advocacy, fish, wildlife, fish and wildlife management or fish and wildlife habitat management issues."
 - d. "Which one of these is the most important to you?"
3. Responses to the questions were used to attempt to secure representatives from each of the following groups:
 - a. hunters - current or former, and big game/small game/nongame
 - b. viewers - current or former, residential or nonresidential and primary or secondary activity
 - c. commercial users - trapping, forest products, game farming or ranching, art or photography, outfitting or guiding, other (like mining, outdoor supplies sales)
 - d. agricultural - owner or lessee (livestock, crops, or both)
4. if a representative of a group was not on the random list or could/would not attend, we contacted an organized interest group and invited its representative.

5. send a letter of invitation further explaining the purpose of the groups and an offer of gifts as incentives to participate.

EIS Exchange Project

The desirability of soliciting assistance from other state/federal and private wildlife conservation organizations was not fully recognized until after funding limits for this PEIS project were authorized by Montana's Legislature and after FWP budgets for FY1993 were adopted. The FWP envisioned an exchange program whereby professionals outside of Montana could assist FWP and in return be schooled in the programmatic process being developed in Montana (Weigand 1992). FWP identified the advice of specialists in several areas, e.g., wildlife management, law enforcement, environmental law, and habitat partnerships. Therefore, FWP submitted a proposal for a grant to the National Fish and Wildlife Foundation for funds to implement this program. Matching funds were solicited from three wildlife habitat-oriented organizations: the Rocky Mountain Elk Foundation, Ducks Unlimited, and Pheasants Forever. The proposal was forwarded for outside review to: Frank Schitoskey, Jr. (USDI Fish and Wildlife Service, Denver CO), Mark Reeff (International Association Fish and Wildlife Agencies, Washington, D. C.), Harry E. Hodgden (The Wildlife Society, Washington, D.C.), Rollin D. Sparrowe (The Wildlife Management Institute, Washington, D.C.), and E. G. Hunt, California Dept. Fish and Game, Sacramento).

RESULTS AND DISCUSSION

Progress towards completing the PEIS: Work is progressing on schedule except with some minor deviations: delays in job classification and hiring of the 2nd and 3rd position of the Technical Team have set the project back by about 3 months; and, some delays were experienced in preparation of the technical background information because of the time required to reconcile hunter harvest data for 1971-91 and the Department's commitment to examine position descriptions of 31 individuals with writing assignments. In general, the project is near the end of the second year of an anticipated 3-year duration.

The Process

Steering Committee

Implementation of Phases I-V was detailed by Weigand (1992). The Steering Committee held ten meetings during the year. Membership of the PEIS Steering Committee at the end of the report period was:

Donald Childress (Wildlife), Chairman
Robert Martinka (Deputy Director), Vice-Chairman
Roberta Balaz (Federal Aid Coordinator)

Beate Galda (Attorney)
Gary Burke (Law Enforcement)
Kurt Cunningham (Conservation Education)
Mike Aderhold (Region 4 Supervisor)

The Technical Committee consists of John Weigand (PEIS Leader), Gary Dusek (Wildlife Research Specialist), and Scott McCollough (Environmental Impact Specialist). Marc Glines (Game Warden) serves as the Law Enforcement Subprogram coordinator. Todd Everts remains the liaison with Montana's Environmental Quality Council.

Planned scoping sessions for each of Montana's seven Indian nations have yet to be conducted.

Phases VI-X reflect projected plans for the remainder of the process. All phases will provide the process flow chart (Fig. 1). Activities during the past year directly related to this PEIS are listed in Appendix A.

Public Scoping

The normal process for environmental review of an action proposed by a state agency under MEPA is:

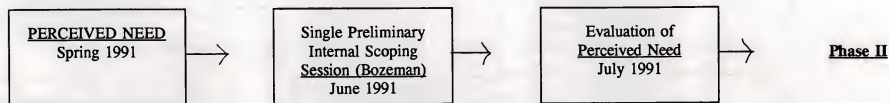
1. develop a proposed action
2. compare the PA against a MEPA checklist to determine what level of environmental review, if any, is required
3. if an EIS is needed, i.e. significant beneficial or detrimental impacts on the human environment, take the PA to the public for comments
4. develop alternative actions to the proposed action, and evaluate the pros and cons for all actions including "No Action," or decision to maintain the status quo alternative.

FWP recognized that implementing the Wildlife Program could significantly impact Montana's human environment and therefore necessitated a MEPA review. MEPA rules mandate public involvement in identifying issues and concerns relative to wildlife resources they viewed as in need of examination in the PEIS. This resulted in the 8 internal and 24 external public scoping sessions.

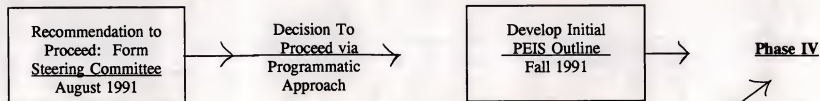
The external scoping sessions during May 28-June 24, 1992, elicited 674 comments, i.e., issues and concerns, on this program. Each comment was grouped into one or more of the five subprograms, then further grouped into more precise categories

Figure 1. Process flow chart for the Montana Department of Fish, Wildlife and Parks' Wildlife Management Programmatic Environmental Impact Statement

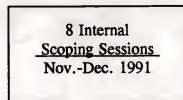
Phase I: PLANNING



Phase II: ORGANIZATIONAL



Phase III: INFORMATIONAL
(Internal)



**Phase IV: ADMINISTRATIVE and
INFORMATIONAL (External)**

**Phase V: RESEARCH and
DEVELOPMENT**

A. Administrative

Employ Technical Staff
May-Oct., 1992

Responsibility Sharing
Coordination
Discipline Leads
Writing Assignments

Phase VII

Chapter I: Purpose and
Need for Action
February-April 1993

Phase VI

Initial Chapter II:
Proposed Action
March 1993

Figure 4 → Phase VI

B. Informational

24 Public Scoping
Sessions
May-June, 1992

Examine/Screen
Issues and Concerns

Intertribal Council
Informational Meeting
August 1992

Scoping Sessions
for Seven Tribes
Summer 1993

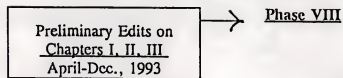
C. Preparation for Phase V

Solicit Technical Writers
for Chapter III: Affected
Environment
Jan.-July, 1992

Writing Assignments for Chapter III
Species Sections (17)
Subprograms (5)
Legal Mandates (1)
Funding & Accountability (1)
Other Physical/Human
Environmental Factors (7)
Aug., 1992-June, 1993

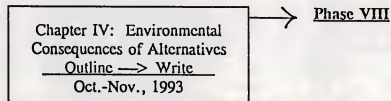
Phase VI

Phase VI: EDITING (Draft)

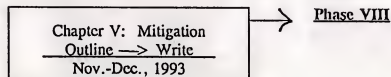


Phase VII: DEVELOP/EXAMINE ALTERNATIVES AND OPTIONS (Draft)

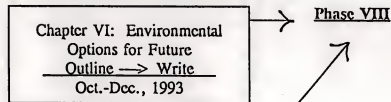
A.



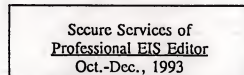
B.



C.



D.



Phase VIII: FINAL ORGANIZATION FOR DRAFT PEIS (Draft)

A.

Develop Final Outline,
Table of Contents,
Lists of Tables & Figures,
Check References Cited
Jan.-Feb., 1994

B.

Final Editing
Feb.-April, 1994

C.

Internal Review
March-April, 1994
(30 days)

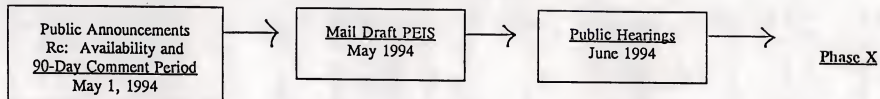
D.

Secure Bids for Printing
Feb.-April, 1994

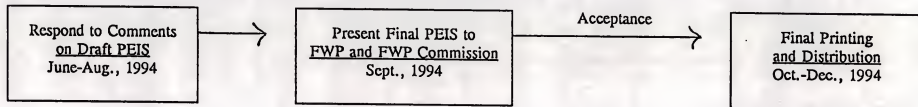
Phase IX

```
graph LR; A[Develop Final Outline, Table of Contents, Lists of Tables & Figures, Check References Cited Jan.-Feb., 1994] --> IX[Phase IX]; B[Final Editing Feb.-April, 1994] --> IX; C[Internal Review March-April, 1994 (30 days)] --> IX; D[Secure Bids for Printing Feb.-April, 1994] --> IX;
```

Phase IX: PUBLIC REVIEW AND COMMENT ON DRAFT PEIS (Draft)



Phase X: DEVELOP, APPROVAL AND DISTRIBUTION OF PEIS (Draft)



and subcategories. Each comment was also reviewed from a perspective of relevancy to the purpose of the PEIS, whether it was within the jurisdiction or authority of the FWP, and the instructions given in an introduction to each scoping group.

Selection Criteria. The Chairman of the Steering Committee appointed a subcommittee to develop criteria for selecting issues and concerns appropriate for the PEIS. Seventeen criteria were subsequently delineated:

- Is the issue already addressed in another FWP EIS or other environmental review process?
- Is the issue addressed by current law?
- Does FWP have a jurisdictional mandate or the expertise to address the issue?
- What is the relative impact on wildlife management/
 - biological impact: low or moderate or high?
 - social impact: controversial? pertinent to MEPA?
- Is there an action that we are already taking or have expected to take with respect to the issue?
- What is site specificity? Is the issue statewide, regional, or local in nature?
- What is the anticipated duration of any impacts? long-term vs. short-term?
- What is the level of general public concern about issue, or is it confined to one individual?
- Is this Wildlife Management PEIS the appropriate document in which to address the issue?
- What is the availability of scientific evidence to address the issue? ability, feasibility, applicability for FWP and Montana conditions?
- What are the economic impacts? low, moderate, or high?
- Are there any public health or safety implications involved?
- Can the issue be analyzed by this process or is it encyclopedic?
- Does the issue involve any fragile or unique characteristics?

- Would a corrective or other action significantly impact sites or structures with significant cultural or historical value?
- What is the potential for setting a precedent? weigh benefits vs. detriments for long term.
- What is the impact in terms of the whole context or cumulative aspect?

Ten issues/concerns were then selected from those obtained at public scoping sessions for evaluation by each Steering Committee member using the 17 criteria. Criteria dealing with duration of impact, impacts on either biological or social aspects of wildlife management, and actions being taken or about to be taken seemed to be the strongest in deciding whether an issue should be included or rejected. The weakest criteria were site or structure altering potential, public health/safety impacts, unique or fragile characteristics, and analytical vs. encyclopedic contributions. The conclusion of the Steering Committee was that some criteria were too subjective to be decisive; the Technical Committee should expedite screening of the issues/concerns but consider all criteria to the best of their ability. Issues or concerns that were questionable for inclusion are to be brought to the attention of the Steering Committee for resolution.

Summary of Comments and Disposition. In summarizing results of screening of the 674 verbal comments from external scoping sessions, 90.2% of those from federal agencies, 90.7% from state agencies, and 78.7% of those from the public were included in the PEIS (Table 1). The remaining comments were excluded from consideration because they represented issues outside of the agency's authority or were beyond the scope of the document. Overall, 82% of those understood their mission and the pre-scoping instructions given verbally at the sessions. Government agency personnel generally exhibited a larger percentage (than the public) of their comments addressed in the PEIS because of their greater familiarity with environmental review processes. No other inferences were drawn from these percentages because no similar processes of this magnitude were available for comparison.

Although written comments have yet to be reviewed, preliminary review suggests a similar trend.

Proposed Action and Alternatives

Ecological Systems. Subsequent to this screening, we developed an initial Proposed Action (PA) (Fig. 2). Focus of the PA involves changes from that of species orientation and single-value decision-making to one in which decisions consider impacts of consequences of management actions at the level of an ecosystem. This also embellishes FWP's Goal A (Mont. Dep. Fish, Wildl. and Parks 1992):

Table 1. Summary of numbers and disposition of verbal comments at other agency and public scoping sessions.

Number of Comments				
Scoping Session Location	Included	Excluded	To Be Re-Screened	Total
Federal Agency Personnel				
Bozeman	8	0	2	10
Helena	38	1	1	40
Billings	31	5	2	382
Missoula	13	1	0	14
Kalispell	38	1	1	40
Great Falls	20	2	0	22
Subtotals	148	10	6	164
State Agency Personnel				
Billings	39	4	0	43
Subtotals	39	4	0	43
Public				
Billings	17	2	0	19
Bozeman	22	5	2	29
Cut Bank	6	3	0	9
Dillon	17	1	1	19
Glasgow	50	16	1	67
Great Falls	30	12	1	43
Havre	20.5	4.5	0	25
Helena	33	2	0	35
Kalispell	34	20	5	59
Lewistown	26	2	0	28
Miles City	14.5	1.5	0	16
Missoula	20	2	0	22
Libby	60.5	15.5	0	76
Sidney	17	2	1	20
Subtotals	367.5	88.5	11	467
TOTALS	554.5	102.5	17	674

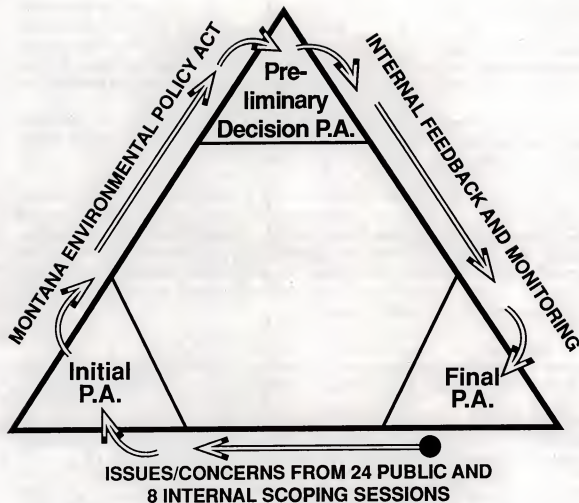


Figure 2. Developing the Proposed Action within the FWP, beginning with issues and concerns expressed about the FWP's Wildlife Management Program.

Manage with a focus on ecological systems to reflect the diversity of all wildlife and their habitats, while maintaining our commitment to Montana's hunting heritage.

Defining ecological systems (hereafter called ecosystems) for the fourth largest of the United States and Montana's recognized habitat diversity suggested that Merriam's Life Zones were too limited (i.e., coniferous forests vs. grasslands), and the 64 types of climax vegetation identified by Ross and Hunter (1976) were too broad for effective management. By combining similar soil types, however, a narrower spectrum of six to eight soils-topographic-climate-vegetation classes was deemed administratively feasible.

The initial PA is considering these classes (in order of their extent) as: plains grassland, mountain forest, intermountain/foothills grassland, shrub/grassland, plains forest, and riparian/wetland (Fig. 3). While riparian and wetland areas comprise the smallest acreage, their uniqueness, rich productivity, widespread distribution and interfacing with other systems suggest they be included as a distinct system. The plains grasslands could be further divided into the glaciated and sedimentary grasslands and river breaks.

Each ecosystem will be described in considerable detail regarding physiography-topography, drainages, climate, major vegetation components including any major ecosystem subtypes, and representative wildlife species.

Ecoregions. To promote immediate administration, a second statewide overlay of six geographic subdivisions based more strongly in geology and soil origin types is being adapted from Schmidt and Dufour (1975). The six types, called ecoregions, include: northwest montane, southwest montane, glaciated plains and mountains, non-glaciated plains and mountains, glaciated eastern plains, and non-glaciated eastern plains (Fig. 4)(1993 Application For Federal Aid). These subdivisions are an interim approach to description of the more complex ecosystems.

Relationship to Program Planning. Because of the breadth and depth of a statewide wildlife management program like Montana's, all related aspects need to focus in one direction. Achieving and maintaining that focus seems to be best modelled as a pentagonal pyramid (i.e., three dimensional), with each major department function or subprogram (habitat, management, research, conservation education, and law enforcement) comprising one of the sides (Fig. 5). Each of the subprograms is focused on direction of the overall wildlife management program indicated by the PA.

The core of the pyramid is comprised of horizontal layers with a base layer formed by initial concerns for wildlife by the public during the late 19th Century (Fig. 6). This resulted in establishment of a state Fish and Game Commission in 1895 and of the Fish and Game Department in 1901. These establishments, combined with all of the subsequent legislative mandates, have generated a funding base upon which to administer the wildlife program. A significant body of knowledge about wildlife species and their habitats has resulted from those funds. In 1973, FWP initiated formal planning for the program. Planning efforts, stemming from the knowledge base, pointed increasingly toward the need for a broader systems approach to managing the state's wildlife. This is all culminating in the current apex for the pyramid, the Proposed Action.

The pyramid concept also shows how each internal core layer is related to each of the five subprograms. Each subprogram is also related directly to the other subprograms.

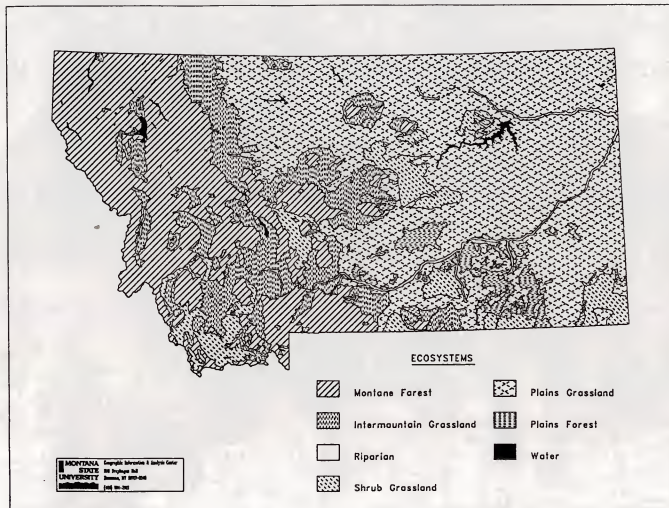
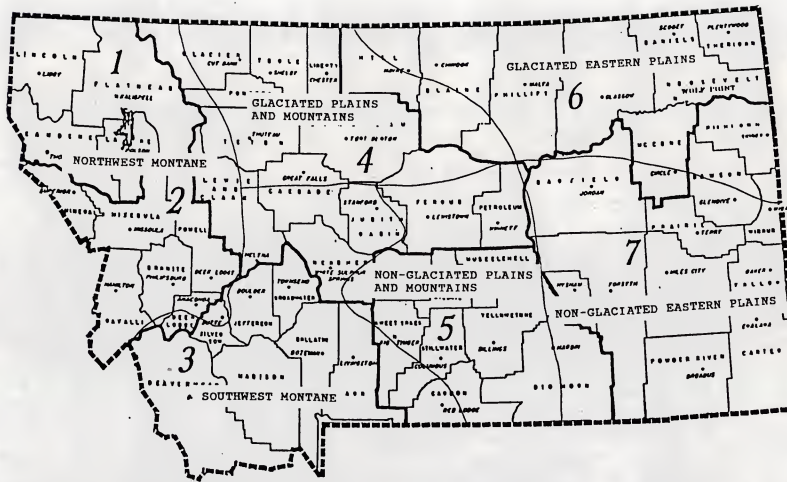


Figure 3. Ecological systems within the state, based on soil types, physiography/topography, climate and broad vegetation classes.



Fish, Wildlife and Parks Administrative Regions

Figure 4. General positioning of six ecoregions over FWP's seven administrative regions.

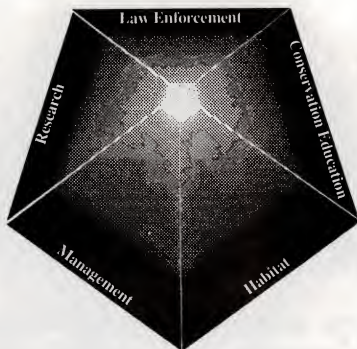


Figure 5. Focusing the five subprograms of FWP's wildlife management program in one direction.

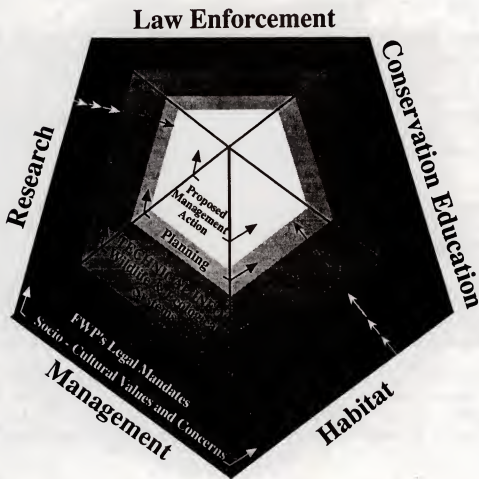


Figure 6. Functional core layers and their relationship to each wildlife management subprogram and their focus toward a Proposed Action.

Implementation of the Wildlife Management PEIS by FWP will impact management programs of other government agencies, each with their own mandates and responsibilities. The first contact will include other state governmental units which operate within Montana's environmental "dome" (Fig. 7). FWP also interacts with various federal agencies to coordinate actions from any of these agencies on Montana's wildlife populations and habitats (Fig. 8). Similarly, the FWP coordinates with all state and provincial wildlife agencies with respect to their mandates (Fig. 9). The complexity of this coordination, however, is directed at preserving overall wildlife resources while protecting the integrity of those individual mandates because no single agency has sufficient expertise or financial resources to prescribe total conservation programs for even a single wildlife species on a continental basis.

Draft PEIS Outline

Appendices B and C display the initial outlines. These are working drafts and are subject to change.

Information Needs

Commission Policies and Other Actions

Minutes of FGC meetings were examined back to 1935, and earlier, because the Montana Legislature and Governor adopted the Assent Act in 1941 to allow the FWP to participate in provisions of the Federal Aid in Wildlife Restoration Act of 1937. Law enforcement and conservation education subprograms were in place prior to 1941, but scientific wildlife management, research and broad habitat acquisition/development subprograms were not. Subsequent evaluations and investigations provided the information necessary to develop a credible, stable statewide wildlife management program.

The compilation of wildlife-related issues brought before the FGC is viewed as a working base. It can be added to or deleted from as the relevance of points to department direction or the PEIS is revealed.

Sixty-eight of 415 points brought before the Commission were informational, such as general discussion of issues, reports, announcements, proposals, and pending or enacted legislation. The remaining 354 points were categorized to facilitate reference in appropriate sections of the PEIS (Table 2).

An understanding of administration of department functions and its funding are necessary to follow department philosophy and direction. Administration will be examined within individual PEIS chapters and sections as necessary. Funding is examined as part of the overall discussion of the economics of wildlife management.

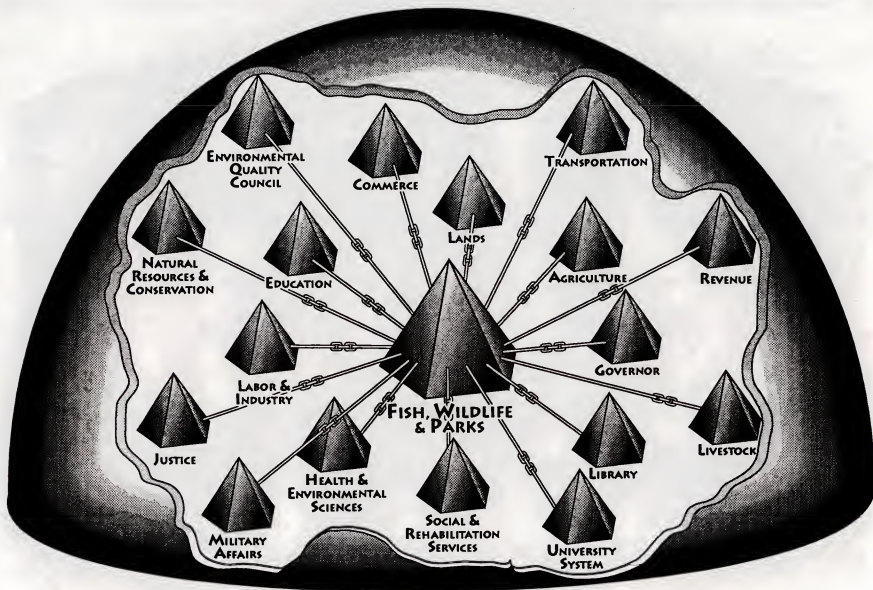


Figure 7. Relationship of FWP to other state governmental units within Montana's environmental dome.

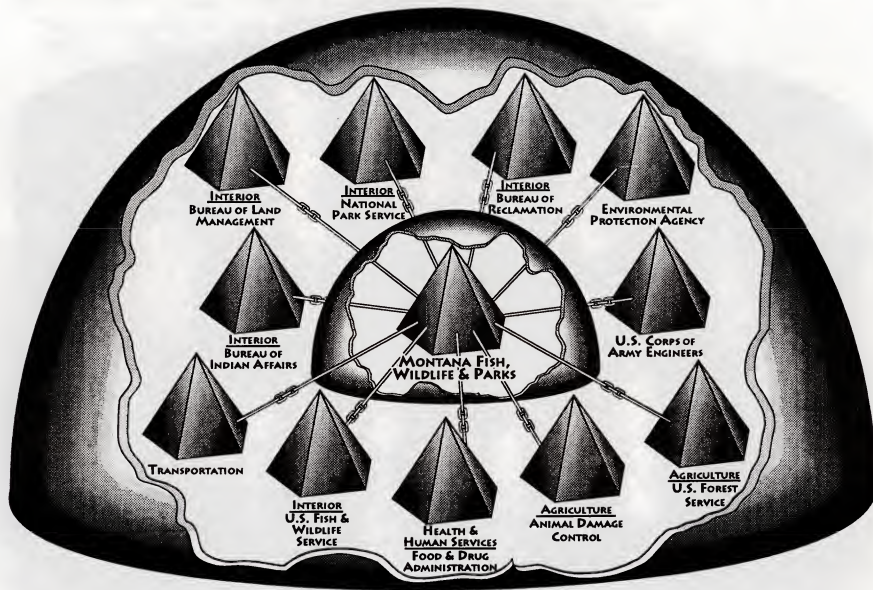


Figure 8. Relationship of Montana's FWP to federal agencies that operate within the Montana and national environmental domes.

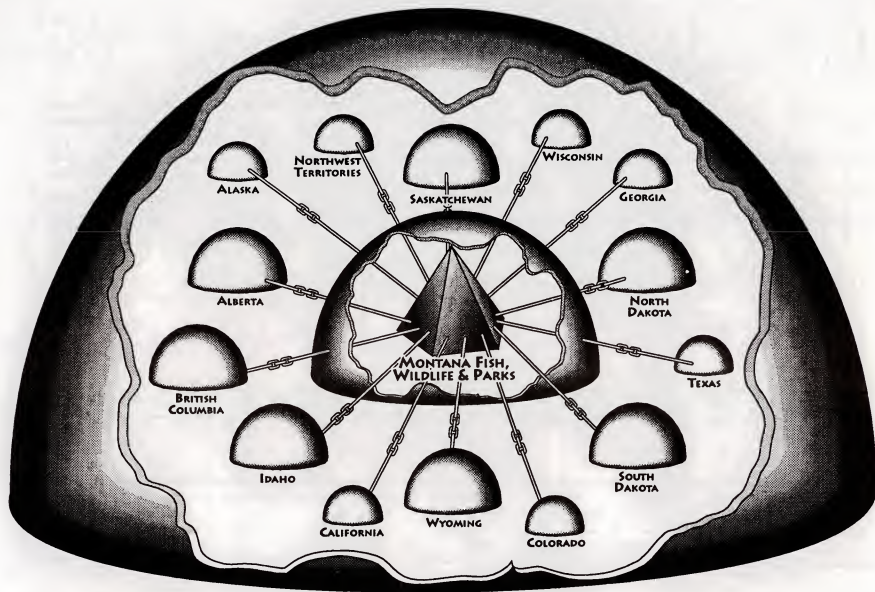


Figure 9. Relationship of Montana's FWP to other state and provincial wildlife agencies operating within the continental environmental dome.

Table 2. Summary of numbers of kinds of actions on wildlife-related issues taken by the Montana Fish and Game Commission, 1935-1992.

SUBJECT	KIND OF ACTION TAKEN							
	Agreement ¹	Acquisition	Authorization/ Directive ²	Management Plan	Motion	Policy	Resolution	Rule
Administration			1	1	17	9	1	8
Funding	1				5	2		4
Interagency Coord.	17			1	1		1	
Habitat Subprogram	4	6	1		10	10	3	5
Information and Education Subprogram			1		4	4		0
Law Enforcement Subprogram			1		14	3		2
Management Subprogram	6		13	10	54	31	1	17
Access	3				4	2		
Predator Control	6		1		9	1		
Preserves/Refuges					13			
Research Subprogram	17		7		6	4	1	
Tribal Coordination	4		1		1	1		

¹ Includes agreement, cooperative agreement, memorandum of understanding, contract

² Commission empowered department director to take specific action as needed

³ Variety of issues/subjects; motion was either carried or rejected

Subprograms

Working outlines for each of the five subprograms are in Appendix B. Department and university personnel and contracted experts are currently developing sections of Volume II: Technical Support Information.

Wildlife Species Descriptions

Write-ups on distribution, biology, ecology, and management of wildlife in Montana began in July 1992 with preparation of a general outline (Appendix C). Individual chapters were organized either by species or groups of species defined by statute (e.g., upland game birds, furbearers). Assignments for writing individual chapters were made in August. Deadlines for assignments were initially set at 11 February 1993 for the initial draft and 12 June 1993 for the final draft.

Fifty-three individuals volunteered to write 16 sections. Following these assignments, 17 coordination meetings were held at 6 locations throughout the state between 8 September and 9 October 1992. The purpose of the meetings was to roughly outline each chapter and distribute writing tasks based on the interest and expertise of individual writers. Outlines of 13 sections were received 28 September-1 December.

Because of several delays, the deadline for draft chapters was set back to 1 July 1993. Standardization of harvest data was not completed on schedule. Data reconciliation was necessary for elk, deer, pronghorn, moose, bighorn sheep, mountain goat, upland game birds, waterfowl, and furbearers. Reassignment of personnel was necessary on committees for two sections.

An updated bibliography on all known research or management investigations on wildlife in Montana was compiled. Although the draft bibliography, which contains over 2,500 entries, remains subject to revision until the PEIS is completed, copies of individual sections were forwarded to authors of various species sections.

As of 30 June, all or portions of seven sections were received: pronghorn, upland game birds, mule deer, white-tailed deer, mountain lion, black bear, and furbearers/predators.

Socio-cultural and Economic Values Associated with Wildlife

Contemporary views separate these values into consumptive and nonconsumptive. In the literal sense, consumption involves using or doing away completely with something (Webster 1974:244). Applied to wildlife resources, this definition typically embraces hunting and trapping, but not deaths of wildlife due to collisions with motor vehicles or scientific collections. Weeden (1976) contends that there is no such thing as nonconsumptive activities or values with respect to wildlife. Although both views have

merit, they need to be reconciled if impacts are to be fairly addressed. For purposes of the PEIS and the impacts of wildlife consumption in whatever form, we are delineating the following categories for wildlife-oriented recreation:

1. active consumption: the deliberate or intentional pursuit of trying to contact wildlife
 - a. harvesting: those activities related to taking physical possession of wildlife legally, like hunting, trapping, or collections, which permanently removes animals from their environment
 - b. scientific/ educational restraint: includes any form of capture or constraint with subsequent live release including bird banding, translocating problem animals, marking for future observation
 - c. viewing: those activities which may or may not physically remove wildlife from its environment, but during which an image of an animal is captured mentally or photographed, sketched, or drawn
 - d. accidental: accidental death of the animal through collision with a motor vehicle
2. passive consumption: incidental viewing while engaged in other another activity like seeing a magpie while driving to work

In each of the active consumption activities, contacting wildlife in some manner is the goal. The person is voluntarily consuming some resources (e.g., gasoline, vehicle wear, wearing certain clothing, using books, using special optics, using firearms and ammunition) to succeed in making the desired contact. During passive consumption, a person is not focusing on wildlife as an activity goal and may prefer to not contact wildlife during that activity.

Socio-cultural Values. Attitudes of Montana citizens toward wildlife were determined via Kellert's survey; 32 attitudinal statements were asked regarding the respondent's level of agreement or disagreement. A random digit dialing sample was purchased for the telephone survey. The survey was conducted during mid-May 1991 by the Computer Assisted Telephone Interviewing Laboratory at Eastern Montana College. The survey was completed or nearly completed by 409 respondents: 51% were males, the mean age was 43.6 years, 62% were native Montanans, and the average time of residence in Montana for non-natives was 17 years. Sixty-two percent of the respondents had hunted in the last 12 months while 90% had viewed/photographed

wildlife during the same period. Respondents' mean scores and percent predominant attitudes are listed in Table 3.

Table 3. Public attitudes toward wildlife in Montana, 1991.

Dimension	Mean Score	Percent of Attitudes
Aesthetic	4.78 (2.7)*	32 (9)
Ecologicistic	4.20 (5.5)	38 (62)
Dominionistic	3.08 (3.7)	4 (4)
Naturalistic	2.94 (4.7)	2 (12)
Utilitarian-Consumption	2.91 (3.3)	5 (6)
Moralistic	2.80 (1.5)	3 (2)
Negativistic	2.78 (1.0)	5 (3)
Utilitarian-Habitat	2.60 (0.9)	12 (2)

* FWP employee scores in ()

In June 1991, the Responsive Management Unit of FWP mailed a questionnaire about attitudes toward wildlife to 416 permanent full time employees. Sixty-one percent of the (253) questionnaires were returned; 16 were received too late for inclusion in information analyses. Mean scores for employees reflected some agreement with the public in high scores for ecologicistic and dominionistic dimensions as well as lower scores for negativistic and utilitarian-habitat (Table 3). Employees agreed with the public with respect to the highest percent of attitudes being in the ecologicistic dimension but were significantly different in the aesthetic and utilitarian-habitat dimensions. That latter divergence suggests that while the public has a high appreciation of wildlife they may require significant education in ecological relationships in order to preserve wildlife for future enjoyment.

In an attempt to refine some of the public attitudes toward wildlife, the Responsive Management Unit recommended further quizzing of individuals through a two-stage process: a qualitative survey via Focus group discussions, and a quantitative survey of a larger sample of Montana residents. A total of 276 people were called, and 90-100 were asked to participate in one of six FOCUS groups. Group discussions about wildlife-oriented recreational activities were held in Glendive, Billings, Butte, Missoula, Kalispell, and Great Falls. Despite being offered reimbursement for travel expenses plus a two-year subscription to Montana Outdoors or a FWP video, only 63 people attended;

individual groups consisted of 8-18 people. Each group met during a different evening, 10-19 June.

Reasons for the poor participation were speculated as conflicts with other family, business or recreational activities, and inexpensive incentives. Composition of the groups was 73% current hunters and 23% current trappers; these interests were sufficiently concerned about their views that other activities and incentive offers were secondary to attendance at a focus group. Many participants represented special interest associations like Montana Wildlife Federation, Montana Stock Growers Association, Montana Trappers Association, U.S. Humane Society, Montana Audubon Council, Montana Game Breeders Association, and Montana Wilderness Association.

Each Focus group was greeted by a FWP representative and informed of the purpose of the discussion. A private contractor facilitated the discussion. Responses to questions were recorded on flip charts. Neither the greeter nor any other FWP personnel in attendance entered discussions except when specific questions were directed at them.

Only preliminary results of these discussions have been received. We intend to utilize results to develop a more detailed questionnaire to quantify the beliefs, satisfactions, and motivations expressed at Focus groups.

Economic Values. Economic values associated with harvestable wildlife have been determined by FWP for: antelope hunting (Loomis and Cooper 1988), elk hunting (Duffield 1988), deer hunting (Brooks 1988, Duffield and Neher 1990), waterfowl hunting (Duffield and Neher 1991), upland game bird hunting (Brooks 1992), and black bear hunting (Brooks 1993).

A questionnaire to document actual expenditures and net economic values of watching wildlife by Montana residents is being developed. Conduct of that survey is expected during Fall 1993, so results are available for the Draft PEIS next summer.

EIS Exchange Project

The grant proposal was rejected for unstated reasons.

RECOMMENDATIONS

The process is more or less on schedule and should continue to completion in summer, 1994. Scoping sessions with Montana's Indian tribes need to be conducted.

A slide-illustrated presentation that documents the PEIS process should be developed for future educational purposes. This presentation would be especially useful

to the Fish and Game Commission, special committees of the Legislature, and the Environmental Quality Council.

LITERATURE CITED

- Brooks, R. 1988. The net economic value of deer hunting in Montana. Mont. Dept. Fish, Wildl. and Parks, Helena. 32 pp.
- Brooks, R. 1992. Montana Bioeconomics Study: a contingent valuation assessment of upland game bird hunting: hunter attitudes and economic benefits. Mont. Dept. Fish, Wildl. and Parks, Helena. 21 pp.
- Brooks, R. 1993. Montana Bioeconomics Study: a contingent valuation assessment of black bear hunting: hunter attitudes and economic benefits. Mont. Dept. Fish, Wildl. and Parks, Helena. 23 pp.
- Duffield, J. 1988. The net economic value of elk hunting in Montana. Mont. Dept. Fish, Wildl. and Parks, Helena. 85 pp.
- Duffield, J., and C. Neher. 1990. Montana Bioeconomics Study: a contingent valuation assessment of Montana deer hunting: hunter attitudes and economic benefits. Mont. Dept. Fish, Wildl. and Parks, Helena. 66 pp.
- Duffield, J., and C. Neher. 1991. Montana Bioeconomics Study: a contingent valuation assessment of Montana waterfowl hunting: hunter attitudes and economic benefits. Mont. Dept. Fish, Wildl. and Parks, Helena. 37 pp.
- Loomis, J., and J. Cooper. 1988. The net economic value of antelope hunting in Montana. Mont. Dept. Fish, Wildl. and Parks, Helena. 26 pp.
- Montana Dept. Fish, Wildl. and Parks. 1992. Creation a VISION for the future of Montana's Fish, Wildlife and Parks. Helena. 9 pp.
- Ross, R. L., and H. E. Hunter. 1976. Climax vegetation of Montana, based on soils and climate. USDA Soil Cons. Serv., Bozeman. 64 pp.
- Schmidt, W. C., and W. P. Dufour. 1975. Building a natural area system for Montana. Western Wildlands:20-29.
- Webster's New Collegiate Dictionary. 1974. G. & C. Merriam Co., Mass. 1536 pp.
- Weeden, R. 1976. Nonconsumptive users: a myth. Alaska Cons. Rev., Fall.

Weigand, J. P. 1992. Programmatic environmental impact statement. Ann. Prog. Rep., Proj. W-100-R-05, Subproject 1, Study CO-2, Job No. 2. 10 pp.

APPENDIX A

LIST OF MEETINGS AND PRESENTATIONS BY THE PEIS TECHNICAL COMMITTEE, FY 1993

Date	Name of Group	Function/Type Meeting
07-14-92	Regional Wildlife Managers, Wildlife Div. Staff Meeting, Wall Creek WMA	Review general tone of scoping sessions issues/concerns
07-16/18-92	Governor's Symposium on North America's Hunting Heritage, Bozeman	Receive information
08-04-92	Steering Committee Meeting, Helena	Regular agenda
08-11-92	Wildlife Division In-Service Training Session, Fairmont Hot Springs	Update personnel/PEIS; species sections writing assignments
08-18-92	Montana-Wyoming Tribal Chairman's Association meeting, Billings	Update on/request assistance on PEIS
08-25-92	Montana Environmental Quality Council, Helena	Regular meeting: update on PEIS
09-01-92	Research Section Meeting, Bozeman	Needs, outline
09-02-92	Habitat Section Meeting, Bozeman	Needs, outline
09-03-92	Technical Committee 3rd Position Selection Committee meeting, Helena	Develop selection criteria
9-10/11-92	National Watchable Wildlife Conference, Missoula	Informational
09-22-92	Steering Committee Meeting, Helena	Regular agenda
09-28-92	Ravalli Co. Fish & Wildlife Assoc., Hamilton	Purpose/progress on PEIS
10-09-92	3rd Position Selection Committee meeting, Helena	Review/screen applications
10-20-92	Steering Committee Meeting, Helena	Regular agenda
11-05-92	Harvest Season Setting Subsection meeting, Helena	Needs, outline
11-30-92	Conservation Education Staff meeting, Helena	Needs, outline

12-03-92	Watchable Wildlife Interagency Partners Steering Committee,	Organizational, solicit information
12-07-92	Research Subprogram Technical Group, Bozeman	Develop outline, assignments
12-07-92	Steering Committee Meeting, Helena	Regular agenda
12-17-92	Meet with Responsive Management Unit, Helena	Economic and socio-cultural survey potentials
12-21-92	Meet with FWP Finance Committee, Helena	Organizational: needs, outline
12-22-92	Steering Subcommittee Meeting, Bozeman	Criteria selection for scoping issues/concerns
01-05-93	Law Enforcement Staff Meeting, Helena	Informational
01-06-93	Meet with FWP Finance Subcommittee, Helena	Needs, outline
01-08-93	Watchable Wildlife Technical Subcommittee Meeting, Helena	Specific information needs, draft MOU, survey costs
01-11-93	Finance and Admin. Division Subcommittee, Helena	Needs, outline
01-13-93	Law Enforcement Subcommittee, Bozeman	Needs, outline
01-14-93	FWP and Flathead NF staffs, Kalispell	Update of PEIS progress
01-19-93	Steering Committee Meeting, Helena	Regular agenda
01-22-93	Watchable Wildlife Interagency	Examine survey proposals Technical Subcommittee Meeting, Bozeman
01-29-93	Endangered Species Symposium by	Receive Information Cinnabar Foundation, Bozeman
02-04-93	Wildlife Forum, Montana State University, Bozeman	Current PEIS process to staff and students
02-16-93	Meet with Responsive Management Unit, Bozeman	Focus group survey type

02-25/26 -93	Montana Chapter, The Wildlife Society, Great Falls	Receive Information
03-03-93	Steering Committee Meeting, Helena	Regular agenda
03-11-93	Regional Wildlife Managers, Wildl. Div. Staff Meeting, Bozeman	Wildlife Management Plan relation to Proposed Action (concept)
03-11-93	FWP Region 3/Research & Technical Serv. Bureau Personnel Mtg., Bozeman	Update on PEIS process
04-06-93	Steering Committee Meeting, Helena	Regular agenda
04-07/09 -93	Northwest Section meeting, The Wildlife Society, Missoula	Receive information
04-09-93	Meet with MT Dept. State Lands, Helena	PEIS information
04-15-93	Focus Group RFP, Helena	Review RFPs, select consultant
04-16-93	Biodiversity Conference, Helena	Receive information
05-18-93	Regional Wildlife Managers and Wildlife Staff Meeting, Bozeman	Review draft initial proposed action
05-19/20-93	Western States Elk Workshop, Bozeman	Receive information
05-21/23-93	Western Bowhunting Conference, Bozeman	Receive information
05-25-93	Steering Committee Meeting, Helena	Review draft initial proposed action
05-26-93	Meet with Heidi Youmans, Bozeman	Develop outline for game
06-10-93	Watchable Wildlife (WW) Focus Group Meeting, Billings	Qualitative survey on watchable and harvestable wildlife
06-13-93	WW Focus Group Meeting, Glendive	Same as 06-10-93
06-16-93	WW Focus Group Meeting, Butte	Same as 06-10-93
06-17-93	WW Focus Group Meeting, Missoula	Same as 06-10-93
06-18-93	WW Focus Group Meeting, Kalispell	Same as 06-10-93
06-19-93	WW Focus Group Meeting, Great Falls	Same as 06-10-93

APPENDIX B

INITIAL DRAFT PEIS OUTLINE

Volume I

DRAFT PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT WILDLIFE MANAGEMENT PROGRAM MONTANA DEPARTMENT OF FISH, WILDLIFE AND PARKS

SUMMARY

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I. PURPOSE AND NEED FOR ACTION

- A. Need for change in wildlife program
- B. Proposed changes
- C. Summary of proposed action
- D. Benefits of proposed action
- E. Decisions regarding the proposed action
- F. Summary of scoping comments

CHAPTER II. PROPOSED ACTION AND ALTERNATIVES

- A. Chapter overview
- B. No action alternative (existing program)
- C. Proposed action
- D. Alternatives
- E. Alternatives considered but dismissed
- F. Summary of environmental impacts for each alternative
- G. Preferred alternative

CHAPTER III. AFFECTED ENVIRONMENT

- A. Chapter overview
 - 1. Organization
 - 2. Reference to technical information (Vol. II)

CHAPTER IV. IMPACTS BY RESOURCE AREA

- A. Alternatives
 - 1. Alternative A: No action
 - 2. Alternative B: Proposed action
 - 3. Alternatives C, D, E, etc.
- C. Cumulative impacts by resource area
- D. Longevity of impacts
- E. Irreversible and irretrievable losses

CHAPTER V. MITIGATIONS (if any; maybe in Chapter II)

CHAPTER VI. ENVIRONMENTAL OPTIONS FOR FUTURE

- A. Environmental review processes and checklists
- B. Categorical exclusions

PREPARERS, CONTRIBUTORS, AND REVIEWERS

LITERATURE CITED

INDEX

APPENDIX

- A. Glossary
- B. Scoping information
- C. Comments and responses on Draft PEIS

Volume II

TECHNICAL SUPPORT INFORMATION

I. ADMINISTRATION

- A. Authorities
- B. Organization and Management
 - 1. Role of Fish and Game Commission
 - 2. Role of Department
 - 3. Financing
 - a. introduction
 - b. historical background
 - c. current sources of revenues

- d. current expenditures related to wildlife program
- C. Relationships with the Public (intents of MEPA)
- D. Relationships with Other State Agencies
- E. Relationships with Federal Agencies

II. WILDLIFE MANAGEMENT PROGRAM

- A. Introduction
- B. Evolution
- C. Philosophy

III. SUBPROGRAMS

- A. Purpose and Concept
- B. Habitat
 - 1. Introduction (function, priority, organization)
 - 2. Land Uses and Conventions/Standards
 - a. concepts
 - 1) by acquisition
 - 2) in law
 - 3) relation to public lands
 - b. historical
 - 1) Indian
 - 2) Anglo-Saxon
 - c. current orientation
 - 1) urban developments/subdivisions
 - 2) ranching
 - 3) farming
 - 4) logging
 - 5) mining (hardrock, fossil fuels)
 - 6) water developments
 - 7) wilderness
 - d. environmental contaminants
 - 1) introduction
 - 2) background: pesticides, petroleum products, heavy metals
 - 3) Montana involvements
 - 3. Department options
 - a. deed vs. Lease vs. Easement
 - b. license funding sources
 - c. cost sharing with private conservation organizations

- d. cooperative agreements/memoranda of understanding with state/federal agencies
- e. in lieu of tax payments
- 4. Summary

C. Management

- 1. Introduction
- 2. Access
 - a. role of access and historical background
 - b. relationship to landownership/jurisdictions
 - 1) private
 - 2) FWP
 - 3) state school trust
 - 4) federal
 - 5) tribal
 - c. option to optimize
- 3. Introductions and reintroductions
- 4. Harvest season setting process
 - a. introduction
 - b. historical perspectives
 - 1) citizen commission established, public input
 - 2) legislature's role
 - 3) current socio-political process includes scientific information base
 - c. current process
 - 1) balancing social demands with scientific information
 - a) initiated at field level
 - b) public involvement at 3 levels
 - 2) relationships with federal agencies
 - 3) relationships with Indian tribes
 - 4) relationships with other states/provinces
 - 5) production and distribution of regulations annually
 - d. future process
- 5. Game ranching and farming
 - a. introduction and definitions
 - b. historical background
 - 1) imported perceptions
 - 2) legal mandate of FWP, other agencies
 - 3) impacts to wildlife management
 - c. current concerns
 - 1) threats by diseases, parasites
 - 2) potentials for hybridization, genetic adulteration
 - 3) competition for/degradation of habitats
 - 4) faster transportation mechanisms

- d. role in recovery of rare/endangered species
- e. other game farm issues
- f. anticipated problems and management options
- 6. Preserves and refuges
- 7. Wildlife damage management
 - a. extraordinary harvest seasons
 - b. translocation of nuisance animals
 - c. predator control
- 8. Supplemental feeding
- 9. Species biology, ecology, and management
 - a. ungulates
 - b. omnivores
 - c. furbearers and predators
 - d. upland game birds
 - e. waterfowl
 - f. nongame
 - g. threatened and endangered species

D. Research

- 1. Introduction
- 2. Functions and directions
- 3. Wildlife research
 - a. infrastructure
 - b. long term studies
 - c. special projects
 - d. wildlife laboratory
 - 1) historical background
 - 2) goals, objectives, role
 - 3) services
 - disease/parasite surveillance
 - monitor T&E and other species' mortalities (grizzly bear, wolf, mountain lion, furbearers)
 - provide educational materials to schools, agencies (hides, skulls)
 - blood characterization testing
 - pregnancy testing, reproductive status determinations
 - statewide coordination of biotelemetry frequency use
 - coordinate FWP use of wildlife immobilizing drugs
 - e. statewide annual harvest surveys
 - 1) introduction (purpose)
 - 2) historical background

- initial surveys (1940s-1958)
 - standardized surveys (1958-1981)
 - intensified surveys (1982-present)
 - 3) sportsman's database
 - 4) sampling procedures
 - statistical
 - data collection
 - f. reporting
 - g. interpretation and use
 - e. future options
 - 4. Products
 - a. communications
 - b. assist management
 - c. socio-cultural and economic evaluations
 - 5. Methods and techniques
 - a. field
 - 1) vegetation monitoring
 - 2) wildlife food habits
 - 3) capturing and marking animals
 - 4) population surveys (direct, indirect)
 - b. laboratory
 - c. analytical
 - 1) quantitative
 - 2) qualitative
 - d. impact evaluations
 - 1) costs and benefits to public
 - 2) costs and benefits to wildlife resources
- E. Law Enforcement
- 1. introduction
 - 2. historical background
 - 3. current activities
 - a. enforcement (largely ministerial)
 - b. educational
 - c. other criminal/civil law enforcement coordination
 - d. wildlife damage management
 - 4. future responsibilities and options
 - a. increasing emphasis on preventative measures
 - b. environmental law enforcement
 - c. public access
 - d. enforce habitat development provisions
- F. Conservation Education
- 1. Introduction (function, organization)

2. Historical background
 - a. publicizing harvest regulations
 - b. educational publications, Montana Outdoors
 - c. wildlife extension (with MSU, USFWS)
 - d. hunter education, recreational safety
 - e. youth education through schools
 - f. watchable wildlife, Project WILD
 - g. film center
3. Current functions
 - a. youth education
 - 1) hunter, trapper
 - 2) Project WILD
 - b. adult education
 - 1) Watchable Wildlife
 - 2) Montana Outdoors
 - 3) publicizing harvest regulations
 - c. animal shelter maintenance
 - d. coordinate development of shooting ranges
 - e. audio-visual and film centers

IV. ECOLOGICAL SYSTEMS

- A. Introduction
 1. Definition
 2. Kinds
 3. Statewide distribution and relationships
- B. Plains Grassland (Sample Detail)
 1. Physical description
 - a. geographic location, size unique features/characteristics
 - b. geology/physiography, topography, soils
 - c. water resources (natural wetlands, rivers/streams, impoundments)
 - d. climate (precipitation distribution/types, growing season, temperatures)
 2. Biotic community
 - a. vegetation (subtypes, characteristic spp.)
 - b. human population
 - 1) density/trends
 - 2) settlements
 - 3) landownership
 - a) private
 - b) public
 - c) tribes

- 4) land uses
 - a) urban
 - b) ranching
 - c) farming, haying, orchards
 - d) logging
 - e) mining exploration/extraction
 - hardrock
 - fossil fuel
 - c. wildlife (characteristic, resident vs. migratory/transient, fringe ranges)
 - d. ecotones
 - 3. Socio-cultural, economic, and other values associated with wildlife
 - a. range/proportion of socio-cultural values
 - b. economic relationships
 - 1) wildlife recreation and relationship to industries
 - 2) benefits
 - 3) costs
 - c. other values
- C. Plains Forest
- D. Shrub Grassland
- E. Intermountain/Foothill Grassland
- F. Montane Forest
- G. Riparian
- H. Summary
- I. Literature Cited

V. SOCIO-CULTURAL AND ECONOMIC FEATURES

- A. Socio-cultural
 - 1. Introduction
 - 2. Demographics (statewide)
 - a. current population and distribution
 - b. population density
 - c. population characteristics
 - d. population trends and projections

- e. dynamics of urban and rural populations
- f. factors influencing changes
- 3. Hunting Heritage
 - a. introduction
 - b. original heritage
 - 1) physical setting
 - 2) prehistoric occupants
 - 3) Indian ethic
 - 4) four aspects of native heritage
 - c. Anglo-Saxon discovery
 - 1) Lewis and Clark Expedition
 - 2) inexhaustibility of Western natural resources
 - 3) Montana's economic development
 - 4) wildlife records by early travelers
 - 5) exploitation of bison
 - d. further opening of Montana's economic doors
 - 1) mining industry
 - 2) livestock industry
 - 3) timber industry
 - 4) Homestead Period
 - 5) early wildlife management by politics
 - e. hunters, wildlife and their management
 - 1) Montana's first conservation law
 - 2) federal conservation philosophy on Montana's environments
 - 3) popular/traditional uses of wildlife
 - 4) present values of hunting
 - 5) informational and financial support of wildlife management by hunters
 - f. hunting and hunters in Montana's future
- 4. Public health and safety
 - a. threats to people by wildlife
 - 1) disease
 - 2) accidents
 - 3) direct attacks
 - 4) transmission of contaminants
 - plants
 - manufactured chemicals
 - 5) risk management

B. Economics

1. Introduction

- a. economic efficiency/impact analyses
 - 1) the basis for resource management decisions
 - 2) the impact of wildlife-related expenditures on local economies
 - b. economic effect of license fees/sporting equipment taxes on wildlife populations and programs.
2. Historical background
- a. pre-1974 situation
 - b. 1974-1992 situation
3. Current economic condition of basic industries
- a. economic trends: logging, mining, agriculture, tourism
 - 1) regional/ecosystem vs. statewide
4. Current economic condition of wildlife-related activities
- a. consumptive use: hunting, trapping (resident vs. nonresident)
 - 1) net economic value
 - 2) expenditures
 - b. nonconsumptive use: (resident)
 - 1) net economic value
 - 2) expenditures
 - c. commercial activities: outfitting, game and fur ranching

APPENDIX C

WILDLIFE SPECIES SECTION OUTLINE

I. INTRODUCTION

- A. Historical observations, occurrence
- B. Taxonomy and evolution
- C. Jurisdiction: Montana law and definition
- D. Role in state's social and economic development
- E. How status and distribution has changed since settlement
- F. Organization of section

II. BIOLOGY AND ECOLOGY (by species or groups of species)

- A. Biology
 - 1. Status and distribution
 - 2. Taxonomy and evolution
 - 3. Physical characteristics
 - 4. Ecological role or niche dimensions
 - 5. Life history: annual biological cycle
 - 6. Food habits
 - 7. Limiting factors
- B. Description of Habitats in Montana
 - 1. Geographical, physiographical, climate, socio-economic values, land uses
 - 2. Patterns of habitat use
 - 3. Habitat changes over time
- C. Population Ecology
 - 1. Condition, status, trend, composition, longevity, turnover rates
 - 2. Population dynamics
 - 3. Relationships with habitats

III. MANAGEMENT

- A. Species valuations (socio-cultural, economic)



